

Salt replacement therapy for children and adolescents with Cystic Fibrosis

Why do people with Cystic Fibrosis need extra salt?

All people with cystic fibrosis (CF) lose large amounts of sodium and chloride (the two compounds that make up salt) in their sweat. People with CF lose 3 – 4 times more salt through their sweat than those without CF. This loss increases with exercise, fevers, infections and hot weather.

Sodium is the major electrolyte found in body fluid. It regulates the amount of water in the blood and tissues. Sodium is important for conducting nerve impulses, muscle contraction and growth.

The CF sweat gland is unable to absorb salt back into the blood. This leaves large amounts of salt in their sweat. Because the level of salt in the blood does not rise, the body has no recognition of thirst. This leads to a higher risk of dehydration. To prevent dehydration, people with CF need to replace both salt and fluid.

Signs and symptoms of salt depletion

- Fatigue, irritability, headaches
- Poor concentration
- Salt crystals on the skin
- Nausea, vomiting, decreased appetite

- Muscle cramps
- Hyponatraemia (low blood sodium)
- Thicker, harder to expectorate sputum
- Thicker secretions in the bowel leading to potential blockages

Recommended doses of sodium

Salt requirements for CF vary based on symptoms, dietary intake, living climate and activity level. Approximate daily requirements are:

- Infants: 500mg (¼ tsp / day)
- Children: up to 4000mg (2 tsp / day)
- Adolescents: 6000mg (3 tsp / day)

Assume that a regular diet contains the equivalent of 1 teaspoon of salt a day.

Even more salt may be required!

- In infancy as requirements are increased during rapid growth
- During periods of illness due to reduced intake and increased losses
- When dietary intake is decreased and/or replaced by oral supplements or tube feeds with low sodium content
- Before additional physical activity
- When holidaying/living in hot climates

Remember: extra salt and fluid is required all year round in Queensland.

Getting extra salt in the diet

The easiest way to consume extra salt is by adding salt and eating foods naturally high in salt.

Try to include the following foods daily:

- Vegemite, butter, margarine
- Cheese
- Pretzels, salted biscuits, salted nuts
- Hot chips or potato crisps
- Tomato, barbeque and soy sauce
- Gravy and dressings
- Processed meats like devon, salami, sausages, ham and bacon
- Pizza
- Olives and pickles
- Canned fish in brine
- Frozen or tinned meals
- Packet pasta, 2 minute noodles

Salt supplements

Taking salt tablets or salt filled gel caps helps prevent dehydration. These supplements create thirst to encourage fluid intake.

- 240 mg in one salt tablet
- ~ 500 mg in one salt filled gel cap.
- 2000 mg in just 1 tsp of table salt

Sport drinks have less sodium (between 150-240 mg per 600mL) than other electrolyte drinks. Increase the salt content of these drinks by adding $\frac{1}{4}$ tsp of

salt, or make your own sports drinks ($\frac{1}{4}$ to $\frac{1}{2}$ teaspoon salt in 1L cordial). Sports drinks are high in sugar so should only be consumed occasionally and remembering good dental hygiene is important.

Tips to get more salt

- Travel with extra salt and water bottle
- Pack a salt shaker in the lunch box
- Use plenty of sauces and gravies
- Choose the 'salted' varieties of foods
- Try freezing your electrolyte drink into ice blocks
- Crush salt tablets or use table salt in your electrolyte drink – freezing this will make an icy slushy
- Add salt generously to savoury foods

Salt and fluid together are important

Water is also lost through sweat. The body cannot store water and the amount lost every 24 hours must be replaced. On average, children should aim for 1200 – 1500mL/day and adolescents should aim for 2000 – 2500mL/day. This will increase with exercise, hot weather and humidity. Nutritious fluids like milk also help prevent dehydration and help provide the extra calories required.